



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,614	09/24/2003	John E. Fagan	5820.642	5617
30589	7590	01/19/2006	EXAMINER	
DUNLAP, CODDING & ROGERS P.C. PO BOX 16370 OKLAHOMA CITY, OK 73113			ISSING, GREGORY C	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,614

Applicant(s)

FAGAN ET AL.

Examiner

Gregory C. Issing

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ ~~This action is FINAL.~~ 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12-25, 28-41, 44-48, 71 and 72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-25, 28-41, 44-48, 71 and 72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3662

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6, 22 and 38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The subject matter of the claims is insufficiently disclosed since it is not understood how the local area augmentation navigation system operates without any power or communication infrastructure. If there is no power infrastructure, what provides the necessary source of energy to operate the reference stations, master stations, security receiver, evaluation computer, and LAAS receiver. Likewise, the reference stations communicate with the master station, while the master station communicates with the LAAS navigation receiver of the user. Thus, the claim language wherein the local area augmentation navigation system does not require any power or communication infrastructure is contrary to the teachings of the disclosure and/or is insufficiently disclosed.

3. Claims 1-9, 12-25, 28-41, 44-48, and 71-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over FAA-E-2937A 102/103

4. Paper FAA-E-2937A sets forth the subject matter substantially as claimed for a local area augmentation navigation system (LAAS) including a plurality of reference receivers, a master station forming a correction message on the basis of information provided by the reference stations and transmitting the correction message, and an LAAS navigation receiver receiving the correction message as well as GPS signals. Additionally, the master station is associated with a plurality of monitoring stations (AVS) for monitoring the broadcast of the correction message by receiving the broadcast transmission and for calculating/determining the integrity/accuracy thereof. The monitoring station meets the scope of the claimed security receiver for receiving the broadcast transmission and the processor therein meets the scope of the claimed calculating means. An alert/alarm is generated and transmitted upon determination that the monitoring station detects an error in the broadcast transmission. That is the

Art Unit: 3662

broadcasted message is not the same as the signal sent to be transmitted. The monitoring station monitors the correctness of the data both before and after transmission, thus meeting the scope of the security receiver monitoring the broadcast of the correction message as well as the generation of an alert/alarm. All transmissions within the monitored frequency range of the monitoring station, i.e. security receiver, would be detectable, particularly in light of the fact that additional stations (AVS) are located in the vicinity of the broadcast; thus, any spoofing/jamming signal, i.e. an unauthorized broadcast, inherently would be detectable since the purpose of a spoofing/jamming signal is to interfere with the desired signal by disguising the spoofing/jamming signal with characteristics similar to the desired signal. Alternatively, if unauthorized broadcasts in the vicinity are not inherently received and evaluated, it would have been obvious to the skilled artisan to monitor all transmissions in the vicinity of the broadcast station broadcasting the correction message in order to provide enhancements to the integrity, reliability, and accuracy of the system by detecting the unauthorized broadcasts and alerting the system of interference sources that would affect the navigation and landing of an aircraft in a CAT I landing.

5. Applicants argue that none of the references suggest (1) a security receiver and evaluation computer monitoring for other broadcasts in the area for unauthorized broadcasts having a similar character as the correction message broadcast by the master station; (2) outputting an alert signal upon detection of an unauthorized broadcast; and, (3) a security receiver and an evaluation computer wherein the evaluation computer receives the correction message output by the master station and determines that an unauthorized broadcaster exists when the message received by the security receiver does not match the correction message broadcast by the master station. Applicants argue that the Examiner has alleged inherency but that there is nothing in the prior art references cited that necessarily presents the monitoring of unauthorized broadcasts having a similar character as the correction message broadcast by the master station. Finally, applicants argue that the prior art references discuss some type of monitoring for purposes of error correction and data integrity and not for the purpose of monitoring for unauthorized broadcasts.

6. The applicants' arguments are not convincing since the elements comprising monitoring of the broadcast as disclosed in Section 3.2.3. meet the scope of a security receiver and evaluation computer

Art Unit: 3662

since the monitoring elements include receiving the broadcast transmission before and after broadcast; thus, the correction message by the master station comprises the correction message before transmission while the monitoring of the broadcast transmission after the broadcast comprises the received authorized and any unauthorized transmissions in the vicinity of the monitoring antenna(s) since the receiver would be capable of receiving signals having similar characteristics such as spoofing/jamming signals designed to appear as the "real signal". The reception of both authorized and unauthorized signals would have been either inherent or alternatively obvious to the skilled artisan because it would have been inherent for the monitoring receiver detecting a signal having predetermined characteristics, i.e. frequency and coding, of the desired broadcast to additionally detect in the vicinity thereof a spoofing signal, i.e. an unauthorized broadcast transmission designed to appear like the authorized signal, i.e. frequency and coding, since the antenna would/could not differentiate between the two signals. Furthermore, the broadcast is in the aeronautical frequency range and the receiver would be capable of receiving signals in such. Moreover, the monitoring portion of the station would inherently evaluate the broadcast message signal prior to transmission with the received signal by comparison thereof for the generation of alerts/alarms on the basis of the evaluation whether the received signal is authorized or not authorized. Likewise, it would have been obvious to one having ordinary skill in the art to monitor transmissions in the vicinity of the broadcast transmission of the correction message in order to reduce the effects of noise or interference that would negatively impact the precision landing requirements. Finally, the fact that unauthorized broadcasts, such as spoofing broadcasts, are designed to decrease the accuracy and operability of the system, the detection and evaluation thereof are clearly within the scope of the navigation system of the document since the document sets forth the applicable means and methods for detecting and alerting users of problems regarding a LAAS message which would decrease the integrity and operability of the system as well as provide the verification of the data broadcast which is one of the purposes of LAAS.

7. Applicants' IDS lists a document by Sankaran et al describing spoofing/jamming.
8. Claims 1-9, 12-25, 28-41, 44-48 and 71-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franke et al (6,469,655) in view of either one of Lamb or Wullschlegel et al.

Art Unit: 3662

9. Franke et al teach an augmentation system for a navigation system including navigation transmitter transmitting signals LA from an ILS station, a navigation receiver in an airplane AV for receiving the signals, and a monitoring network including additional stations HF Sn comprising a security receiver E (3:66-4:8), and an evaluation computer CU for evaluating the signals and triggering an alarm (4:18-30) when it is determined that the known characteristics of the navigational signal, which corresponds to the claimed message output by the master station, that is the source of the transmission, is different from that measured and evaluated by the additional receiving stations which correspond to the security receivers.

10. Franke et al differ from the claimed subject matter since the aircraft navigational and landing system is shown for an ILS system whereas the instant claims are directed to LAAS and therefore the components of the LAAS are not taught, including the reference stations receiving GPS signals and a master station responsive to the reference stations for forming a correction message for transmission to mobile users. Each of Lamb and Wulschleger et al teaches the conventionality of the use of LAAS for providing landing aids at an airport.

11. It would have been obvious to one having ordinary skill in the art to modify Franke et al by incorporating the teachings of system monitoring for rogue transmitters that would affect the accuracy and integrity of navigation for landing airplanes by incorporating LAAS technology for the ILS in view of the teachings of either one of Lamb or Wulschleger et al in view of the move toward LAAS for CAT-I service for the benefits as set forth in each of Lamb or Wulschleger et al. The substitution of LAAS for the ILS at the airport landing area as well as the monitoring of the LAAS in the same fashion as the ILS of Franke et al teach the claimed monitoring for rogue transmitters in the vicinity of the airport and would detect such via the comparison of the transmitted signal with the broadcasted signals detected by the monitoring stations' security receivers.

12. Applicants argue that the combination fails to teach the claimed subject matter substantially repeating the language of the amended portion of the claims, including use of a security receiver and an evaluation computer monitoring the broadcast of a correction message and the outputting of an alert when an unauthorized broadcast is detected. This argument is not convincing since Franke et al teach

Art Unit: 3662

monitoring receivers which correspond to the claimed security receiver(s) and an evaluation computer for detecting unauthorized broadcasts and issuing an alarm in response thereto. Franke et al differ only in the specific navigational system used, ILS versus LAAS. However, the secondary teachings show the conventionality of LAAS for aircraft landing. Obviously, for LAAS, one of the terrestrial components transmitting aircraft bound signals is the master station correction message, thus, it would be this message that may be monitored for detection of rogue transmitters in the vicinity thereof. The use of reference stations gathering data for accumulation at a master station for subsequent broadcast to aid navigation of users in the vicinity thereof is defined by LAAS. Applicants' arguments are directed to apparent elements missing from Franke et al, but the rejection is based on a combination of references wherein the combination suggests the use of LAAS, thus the combination would teach to a skilled artisan the use of a master station, which is part of the LAAS, as well as the monitoring of the broadcast therefrom using Franke et al's monitoring stations/evaluation computer for detecting rogue transmitters, i.e. unauthorized broadcasts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Gregory C. Issing
Primary Examiner

Art Unit: 3662

Art Unit 3662

gci